

REMARKS/ARGUMENTS

1. Applicants acknowledge with appreciation the courtesy of a telephonic interview on August 18, 2004 between Examiner Stimpak, Primary Examiner Diaz, and Applicants' Attorney Jeffrey Klayman to discuss the Office action of May 19, 2004.

During the telephonic interview, the parties discussed the Singh reference in relation to the Puram reference and the claims. Specifically, Mr. Klayman explained that the Singh reference is essentially an example of unilateral conjoint analysis as discussed in the background of the application, since Singh applies conjoint analysis only to candidates (not employers) in a job searching/recruiting environment. Mr. Klayman explained that the claims require that conjoint analysis be applied to both sides in a matching situation, for example, to both candidates and employers in a job searching/recruiting environment. Mr. Klayman asserted that the present invention as claimed is not obvious in view of Puram and Singh because (1) Puram does not describe a bilateral analysis in which preference profiles are generated for both parties and counterparties for use in matching, and (2) there is nothing in Singh to suggest applying conjoint analysis to both candidates and employers to aid in matching. Mr. Klayman further asserted that the Singh reference is evidence of non-obviousness, since the authors, who arguably have at least ordinary skill in the arts of conjoint analysis and job searching/recruiting, failed to recognize the benefits of applying conjoint analysis to both candidates and employers even while touting the benefits of applying conjoint analysis to candidates to aid employers in recruiting.

No agreement was reached on allowability of the claims, although agreement appeared to be reached that neither Puram nor Singh, alone or in combination, teach or otherwise suggest applying conjoint analysis to both parties and counterparties in a transaction. The remaining issue regarding

allowability of the claims appears to be the term “conjoint analysis” itself. Primary Examiner Diaz expressed concern regarding the meaning and specificity of the term “conjoint analysis.” Mr. Klayman asserted that conjoint analysis is a well-known methodology having a sufficiently definite meaning in the art. In support, Mr. Klayman pointed to articles and references relating to conjoint analysis cited in the specification, and also provided (as an example) a definition of the term from the web page www.questionpro.com/conjoint (“Conjoint Analysis is model and technique used to assess the different weights individuals place on the variables presented to them in a given purchase situation”). Agreement was reached that Mr. Klayman would submit a response including the arguments set forth during the telephonic interview and that the Examiner and Primary Examiner would further investigate the term “conjoint analysis.”

2. Applicants reiterate their assertions that (1) Puram does not describe a bilateral analysis in which preference profiles are generated for both parties and counterparties for use in matching and (2) there is nothing in Singh to suggest applying conjoint analysis to both candidates and employers to aid in matching.

3. Applicants reiterate their assertion that “conjoint analysis” is a well-known methodology having a sufficiently definite meaning in the art. To aid in evaluation of the term “conjoint analysis,” Applicants have attached hereto a print-out of the web page www.questionpro.com/conjoint and a print-out of the related web page www.questionpro.com/conjoint/choice-based-conjoint.html. The former provides an exemplary definition of the term as well as a description of three primary conjoint analysis models (self-explicated model, discrete choice, ratings based conjoint). The latter provides additional discussion regarding conjoint analysis as follows:

Conjoint Analysis is one of the most effective models in extracting consumer behavior into an empirical or quantitative measurement.

It evaluates products/services in a way no other method can. Traditional ratings surveys and analysis do not have the ability to place the "importance" or "value" on the different attributes, a particular product or service is composed of. Conjoint Analysis guides the end user into extrapolating his or her preference to a quantitative measurement ... The goal of any conjoint survey is to assign specific values to the range of options buyers consider when making a purchase decision. Armed with this knowledge, marketers can focus on the most important features of products or services and design messages most likely to strike a cord with target buyers.

4. Applicants reiterate their assertion that none of the cited references, alone or in combination, teach or otherwise suggest the claimed invention involving applying conjoint analysis to both parties and counterparties in order to derive preference profiles for the parties and counterparties and using the preference profiles to match parties and counterparties.

5. All pending claims are believed to be in a form suitable for allowance. Therefore, the application is believed to be in a condition for allowance. The Applicant respectfully requests early allowance of the application. The Applicant requests that the Examiner contact the undersigned, Jeffrey T. Klayman, if it will assist further examination of this application.

Respectfully submitted,



Jeffrey. T. Klayman
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Conjoint Analysis

Self-Expllicated Model

Discrete Cho

Conjoint Analysis -- Self Expllicated And Discrete Cho

What is Conjoint Analysis?

Conjoint Analysis is model and technique used to assess the given purchase situation. For example, if a consumer decides to

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Conjoint Analysis

Conjoint Analysis -- Self Explicated And Discrete Choice Models (Full Profile)

What is Conjoint Analysis?

Conjoint Analysis is model and technique used to assess the different weights individuals place on the variables presented to them in a given purchase situation. For example, if a consumer decides to buy a house there are a couple of distinct variables involved:-

- Purchase Price
- Size (Sq. Feet)
- Quality of Bathrooms/Kitchens
- Proximity to Schools

A conjoint study usually involves showing respondents product profiles and asking them to indicate (in a variety of ways) how much they like or prefer these alternative product profiles. Statistics are then used to work out the contribution that each product attribute is making to the overall likeability

What are the differences?

What are the different types of conjoint analysis models?

1. **Self-Explicated Model** - In this model, the respondents are asked "direct" questions about the desirability of a particular list of products and profiles.
2. **Discrete Choice** - Here respondents are asked to choose between multiple products and the relative weights for each of the attributes are calculated indirectly.
3. **Ratings Based Conjoint** - Here respondents are asked to "Rate" the likelihood of purchase for two products at a time.

What does QuestionPro.com offer in terms of the different modules?

At this time, QuestionPro.com supports all three models: The Self-Evaluated Diagnostic Chain and Positive Values QuestionPro.com One of the main differences between the two models is that the Self-Evaluated Diagnostic Chain is based on a more traditional approach to self-assessment, while Positive Values QuestionPro.com is based on a more modern, holistic approach.

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What about Analysis tools and Reports?

- Raw data of the data with the calculated utilities
- Relative Importance of Attributes and Levels
- Market Segmentation and Utility Simulator

Additional References: (Opens in a New Window)
[House Purchase Self-Expllicated Model Conjoint Survey](#)

[House Purchase Choice Based Conjoint Survey](#)

[House Purchase RatingsBased Conjoint Survey](#)

■ Choice-Based Conjoint Analysis (Shows how to go about creating and customizing a Choice Based Conjoint Survey)

■ Conjoint Analysis using the Self-Expllicated Model (Explains how to use the Self-Expllicated Model)

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Conjoint Analysis Self-Explicated Model Discrete Choice (CBC) Ratings Based Getting Started

Conjoint Analysis

A Practical Guide To Conducting Online/Web Based Conjoint Analysis (Discrete Choice) Studies

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Introduction

Conjoint Analysis is one of the most effective models in extracting consumer behavior into an empirical or quantitative measurement. It evaluates products/services in a way no other method can. Traditional ratings surveys and analysis do not have the ability to place the "importance" or "value" on the different attributes, a particular product or service is composed of. Conjoint Analysis guides the end user into extrapolating his or her preference to a quantitative measurement.

One of the most important strengths of Conjoint Analysis is the ability to develop market simulation models that can predict consumer behavior to product changes. With Conjoint Analysis, changes in markets or products can be incorporated into the simulation, to predict how consumers would react to changes.

Attributes and Levels Any product or service can be modeled as an entity with a set of attributes. For example an airline ticket between Seattle and Miami may have the following attributes:-

1. Price
2. Brand (Airline)
3. Miles Gained
4. Seating
5. Flight Stops

Another example is a credit card:-

1. Brand

2. Interest Rate
3. Annual Fee
4. Credit Limit

Each of the attributes may have one or more levels. A level can be defined as any value the attribute can take. In the examples above, the attributes can have the following levels: -

1. Price

- 150\$
- 200\$
- 400\$
- 500\$

2. Brand

- Delta
- AA
- Alaska Airlines
- Northwest

3. Miles Gained

- None
- 4000
- 4000 + 2000 Bonus
- 4000 + 4000 Bonus

4. Seating

- Normal
- Extra Leg Room

5. Flight Stops

- None
- 1
- 2

It is also assumed that each of the levels is mutually exclusive. If you cannot define levels that are mutually exclusive, then you would need to combine levels and redefine them so that they are. The levels should also have concrete and unambiguous meanings. For example - "Very Expensive" vs. "Cost of \$500"

The Number of Levels Effect: -

Holding all else constant, attributes defined on more levels than others will be biased upwards in importance. For example, price defined as (\$100, \$200, \$300, \$400, \$500) will receive higher relative importance than when defined as (\$100, \$250, \$500) even though the same price range was measured. This hold true for quantitative (Price, Speed etc.) as well as categorical (Brand, Color etc.)

The above 5 attributes and 16 levels can be defined as the competitive market for airline flights between Seattle and Miami. If you can define a market using this model, you can use conjoint analysis for consumer behavior and preference.

Choice Based Conjoint

Choice based or Discrete Choice Conjoint is by far the most preferred model for a conjoint questionnaire. This is primarily because it models after consumer behavior in real-life. Most purchases that consumers make today are basically trade-off based. Will you buy a \$150 ticket with 2 flight stops and No miles or a 200\$ ticket with no stops and 4000 miles?

Preparing for the Online Questionnaire

Here are some simple steps to assimilate the information before beginning your online conjoint survey.

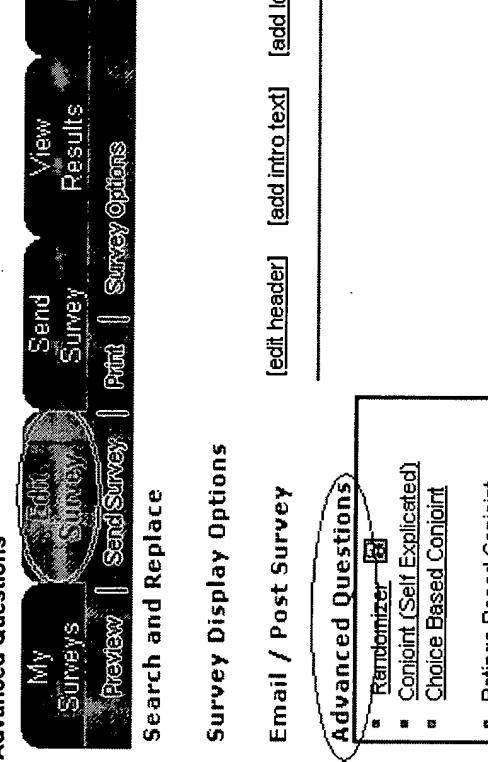
1. **Attributes:** Define the attributes for your market segment. For most studies, try to keep the number of attributes below five. If you have a large number of attributes, try aggregating and combining these attributes into meaningful composite attributes.
2. **Levels:** Define at least two levels for each of the attributes. Try to stick to a maximum of four or five levels per attribute.
3. **Minimal Respondent Base:** Try to figure out if your respondent base is homogeneous. Are you interested in interaction of the conjoint data between different demographics? For example are you trying to figure out if Males place a higher value for miles than females in buying an airline ticket? In such a case your Minimal Respondent Base is $\frac{1}{2}$ of all the participants (assuming equal distribution of males and females.)
4. **Minimal Choice Count for statistical validity:** Try to come up with a minimum number of times a Level should be shown to the respondents to make a statistically valid sampling. For most conjoint studies a Minimal Choice Count of 100 to 150 should give good results. What this number represents is that, all attribute levels should be presented at least 100 to 150 times to make the results of the study statistically significant.

You do not need to come up with both the Minimal Respondent Base and Minimal Choice Count. If you have one, the Concept Simulator can determine the other. More details about the Concept Simulator are provided below.

Creating the Conjoint Survey

All you need to create the conjoint survey are the Levels and Attributes. They are the minimal data-points required to create a conjoint survey.

1. Login to QuestionPro with your username and password
2. Create a new survey or edit a survey that you have already created.
3. My Surveys » Edit Survey » Advanced Questions



4. This should open up a window for the Conjoint Question Wizard. Type in the Attributes (One per line)

This is an example of the Ratings relative preferences for home buys

Step 1 of 2

Feature Selection

Enter the name of each feature (Factor) to be evaluated -- Enter each name on a new line. Ex. -

Price
Color
Size

Feature	Value	Count
Price	<input type="checkbox"/>	1
Brand (Airline)	<input type="checkbox"/>	2
Miles	<input type="checkbox"/>	2
Seating	<input type="checkbox"/>	2
Flight Stops	<input type="checkbox"/>	2

Task Count 4 2

Concepts Per Task 2 3

Allow for "No Applicable Choice" Option

Text for "No Applicable Choice"

None

Orientation Vertical Horizontal

Next Step >>

5. In the next step, type in the Levels for each of the attributes and Save the Conjoint Question. You will be asked to enter in the levels for each of the attributes defined in the previous step. You can click on the online help icons anytime to get more detailed information about features and options.
6. Once you are done, a Conjoint Question is added to your survey! You can click on the "Preview/Test Survey" button to take the conjoint survey.
7. The "Setup" link gives you access to additional tools and configurations for the Conjoint question. At a minimum the following tools are available: -
 - Concept Simulator

- Price Table
- Prohibited Pairs



Conjoint Analysis [setup]

1. Price \hookrightarrow Less than 100k | 100k To 150k | 150k to 200k | 200k To 250k | 250k to 300k | 300k To 350k | More than 350k
2. House Area \hookdownarrow Less than 1000 Sq Feet | 1000 - 1300 | 1300 - 1700 | 1700 - 2000 | 2000 - 2300 | 2300 - 3000 | More than 3000 Sq Feet
3. School \hookdownarrow Close to Elementary Schools | Low ranked Middle/High School | Medium ranked Middle/High School | High ranked Middle/High School

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[add new question] [remove separator]

Customizing the Conjoint Survey

The behavior of the Conjoint Engine can be customized by clicking on the "setup" link on a conjoint question. The Conjoint Setup gives you a host of options and tools. One of the most important ones is the Concept Simulator.

1. Concept Simulator

The Concept Simulator is basically a respondent Simulator. This can be used to determine what choices will be presented to the respondents when your survey is actually deployed. You can use this information to determine either the number of respondents you need to send the survey out to, or the Minimal Choice Count.

The Concept Simulator can be run by clicking on the "Setup" Link on your conjoint question and then choosing the number of users you want to simulate the different concepts:-



Conjoint Analysis [setup]

1. Price \hookrightarrow Less than 100k | 100k To 150k | 150k to 200k | 200k To 250k | 250k to 300k | 300k To 350k | More than 350k
2. House Area \hookdownarrow Less than 1000 Sq Feet | 1000 - 1300 | 1300 - 1700 | 1700 - 2000 | 2000 - 2300 | 2300 - 3000 | More than 3000 Sq Feet
3. School \hookdownarrow Close to Elementary Schools | Low ranked Middle/High School | Medium ranked Middle/High School | High ranked Middle/High School

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2. QuestionPro.com Online Survey Software Application - Microsoft Internet Explorer

Concept Simulator Prohibited Pairs

how does this work?

Simulate Concept Choices

Price	House Area	School	
Less than 100k	428	Less than 1000 Sq Feet	438
100k To 150k	428	1000 - 1300	435
150k to 200k	433	1300 - 1700	434
200k To 250k	435	1700 - 2000	402
250k to 300k	430	2000 - 2300	416
300k To 350k	423	2300 - 3000	440
More than 350k	423	More than 3000 Sq Feet	435
	3000		3000

Close

The Concept Simulation above simulates 1000 respondents. In the conjoint definition we setup this as 4 concepts / task we see that the total for any feature is 4000. The Display Count for each of the levels in all the attributes is shown. Running the Concept Simulator multiple times will yield different random results. This is by definition and design since we are using the "Random" Concept Choosing Mechanism.

If you already know the number of respondents that will be taking the survey, then choose a simulation count closest to that and run the simulation. The Display Count for each of the Level will be displayed after the Simulation. This number should be more than your Minimal Choice Count. If that is not the case, then you can do one of the three things: -

1. Increase the number of respondents
2. Increase the Number Of Tasks per respondent. Please bear in mind that if the number of tasks is too high, then the probability of "Drop Outs" increases significantly
3. Increase the Concepts Per Task value. Again, this increases the stress on the respondent, because now he will have to choose between more products

If you are trying to determine the number of respondents, then start off with the least number and simulate the Display Count. Keep increasing the simulation count till you reach an acceptable Display Count that is more than the Minimal Choice Count. This is the approximate number of respondents that you need to recruit for to satisfy the Minimal Choice Count.

2. Price Table Configuration

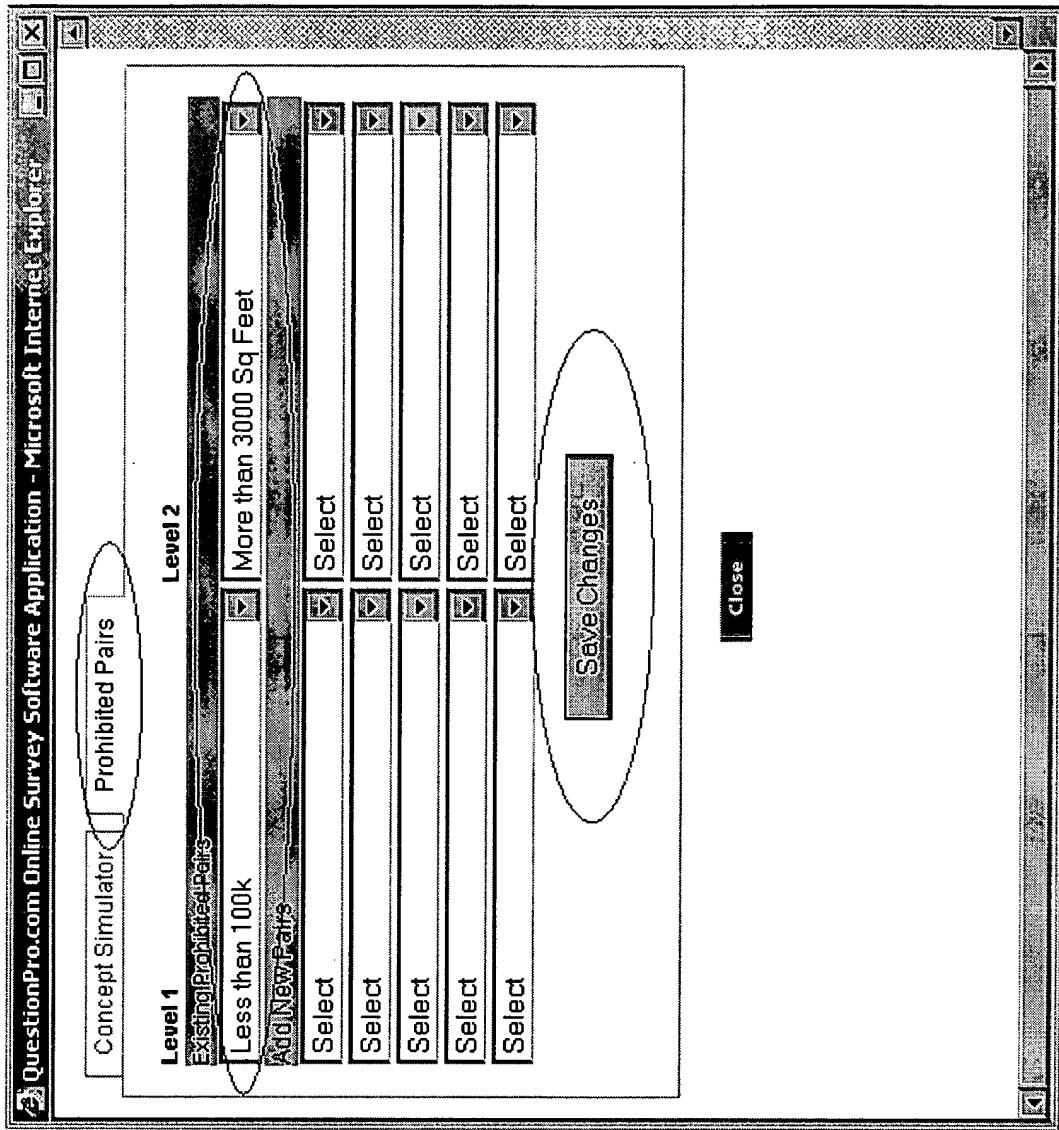
Price Tables are useful if your market is fairly broad and that certain Levels of certain attributes are constrained by an upper and lower limit on the price. This is mainly used for "lower" limits only, but functionality for upper limit is also provided. For example, in our case there might be absolute financial constraint for the Attribute "Seating" and Level "Extra Leg Room" the minimum cost is \$300. It basically makes the choices more realistic, because the respondent will never see a concept which includes a price of \$150 or \$200 and 'Extra Leg Room'.

3. **Prohibited Pairs** If there are special "Business Rules" in defining concepts such that a particular Level can never appear with another level as part of the same concept, you can create those prohibited pairs here. For example, if we know for sure that American Airlines never gives out Bonus Miles, then we can create two prohibited Pairs: -

1. AA & 4000 + 2000 Bonus
2. AA & 4000 + 4000 Bonus

This will make sure that the Conjoint Engine never shows the respondent a concept that includes AA and bonus miles.

Again, this makes choices more realistic. However bear in mind that you conclusions and market simulations are based on the fact that AA will NEVER issue Bonus Miles (Even in the future)

**Distributing the Survey**

For all practical purposes, conjoint surveys are the same as other traditional surveys that are developed using the survey engine. Please follow one of the methods of distribution in the "Distribute" tab.

More information about distributing surveys can be found here: - [Click here for help on sending out your survey](#)

Analysis of Choice Data

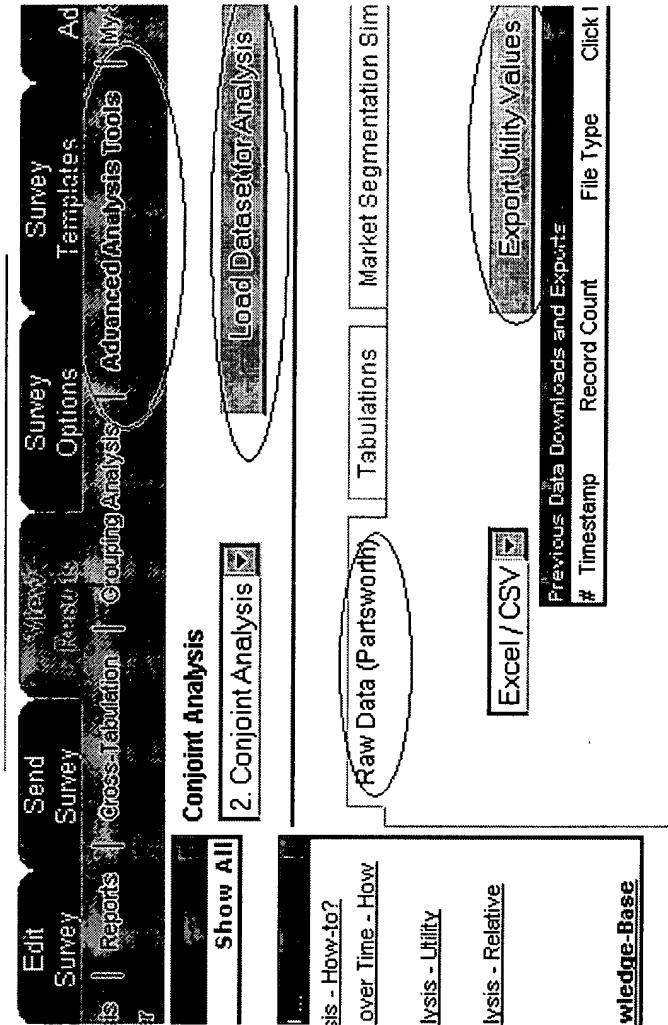
Once data-collection is completed or at anytime during data-collection you can download a comprehensive Excel Report of the Choice Data that has been collected so far - Choice Data Report.

My Surveys » (Select Survey) » View Results » Advanced Analysis Tools » Conjoint Analysis

At a minimum the Choice Data Report will have the following:-

1. Raw Data of the Choices made by the respondents

This is the basic raw data as QuestionPro received it. This can be used with other statistical packages like SPSS etc. for additional analysis.

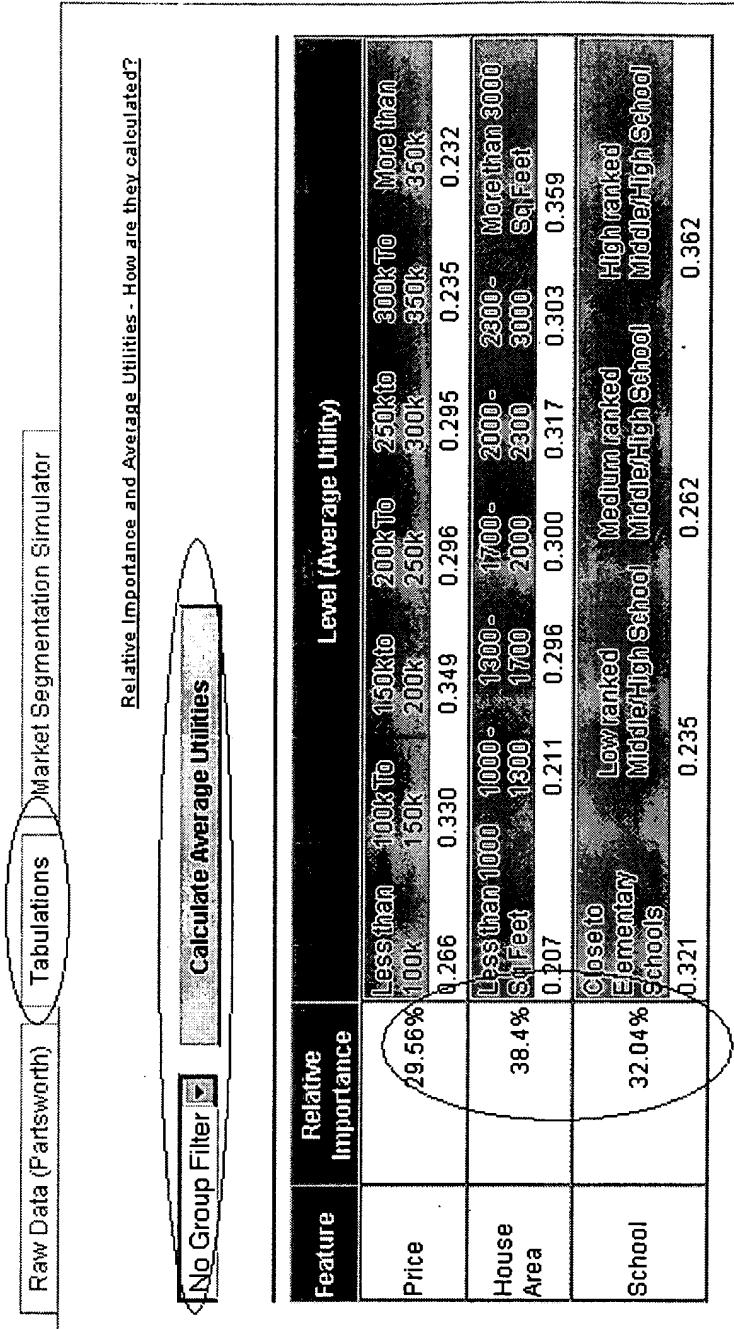


2. Attribute Cross Tabulation of Counts

Every Attribute in the Conjoint Question will be Cross-Tabulated with the remaining attributes. This data can be used to analyze price sensitivity brand interaction.

3. Table of Relative Importance of the Attributes and Average Utilities

The Average Utilities give you a rough estimate of how important each of the levels is in a purchase decision. From the average utilities, a "Range" for each attribute is also calculated and displayed as well as the Relative Importance or Impact on purchase decision.



Market Share and Product Definition Simulator

The Conjoint Simulator is by far the most interesting aspect of Conjoint Analysis. This gives you the ability to "predict" the market share of new products and concepts that may not exist today. This also gives you the ability to measure the "Gain" or "Loss" in market share based on changes to existing products in the given market.

The first step in Conjoint Simulation is identifying and describing the different products or concepts that you want to investigate. We call these "Profiles". As mentioned earlier, any product or concept can be identified or created using the Attributes and Levels that have been defined for the study. For the purposes of the Conjoint Simulator, a product or concept comprises of all the Attributes and one level from each of the attributes.

For example one of the profiles could be: -
\$500, Alaska Airlines, 4000 + 4000 Bonus, Normal Seating, No Flight Stops

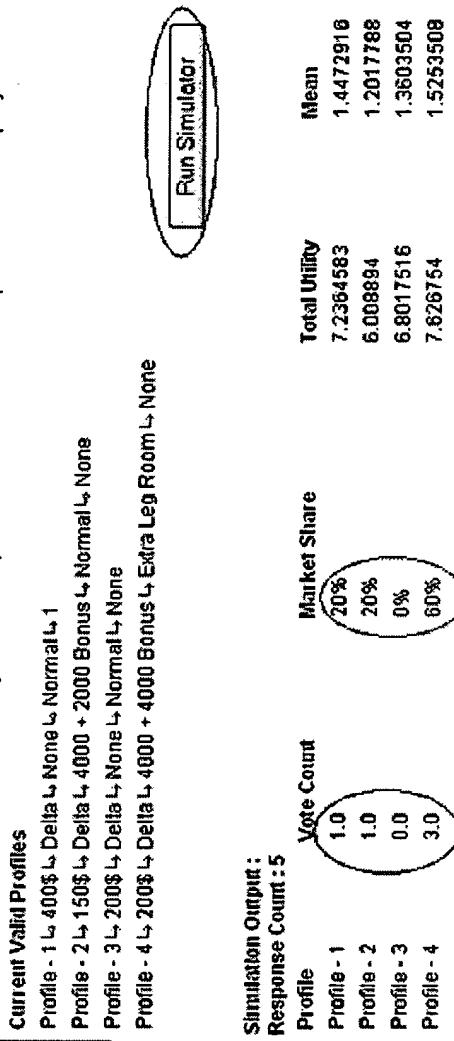
In most cases we would want to find out all the existing products that are available in that market segment and simulate the market share of the products to establish a baseline. Once this is established, it would be a good starting point for trying out new services and ideas and see how the market share shifts based on new products and configurations.

Conjoint Choice simulation can be done using a couple of different models. At the least the following models will be available: -

First Choice Model

The First choice model identifies the product with the highest utility as the product of choice. Here is how the First Choice Model works: -

1. The Utilities for each of the respondent is calculated.
2. For each Profile in the simulation, the respondents Utility towards that particular Profile are calculated.
3. The Profile with the highest utility is chosen as a "Vote" to that profile by that respondent. If there is a tie between multiple profiles, then the vote is distributed across the profiles. For example if Profile 1 and Profile 2 have the same utility value for a particular respondent, then a vote of .5 is given to each of the profiles.
4. When this is done for all the respondents, the Market Share for each of the profiles is calculated - this is the percentage of votes that a profile got compared to all the votes.
5. The Total Utility as well as the Mean Utility for all the profiles across all the respondents is displayed.



Tabulation Data :

Response ID	Profile - 1	Profile - 2	Profile - 3	Profile - 4
102	1.5238098	0.7619048	1.2190477	1.9630364
116	1.3309674	0.98976191	1.3309524	1.4944445
115	0.752331	1.2188145	1.3831003	1.5703297
114	1.7126985	0.905585566	0.8984127	0.81858176
32	1.9166666	2.126	1.9702381	1.7787619

The simulation above shows the following: -

1. 5 Respondents took the survey
2. Profile 4 got the most votes - 3
3. Profiles 2 and 3 got the same number of votes; however the Mean Utility for Profile 1 is higher than Profile 2.

You can change/add more profiles and see how the market share is affected by adding and changing profiles and experiment with new ideas.

Conclusion

The goal of any conjoint survey is to assign specific values to the range of options buyers consider when making a purchase decision. Armed with this knowledge, marketers can focus on the most important features of products or services and design messages most likely to strike a cord with target buyers.

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